



PCT10

ENTERED

RAW SEQUENCE LISTING

DATE: 09/09/2002

PATENT APPLICATION: US/10/069,772

TIME: 15:57:07

Input Set : A:\069772s1

Output Set: N:\CRF3\09092002\J069772.raw

```

4 <110> APPLICANT: Feussner, Ivo
5     Hornung, Ellen
6     Fritsche, Kathrin
7     Peitzsch, Nicola
9 <120> TITLE OF INVENTION: Fatty acid desaturase gene from plants
11 <130> FILE REFERENCE: 0050/50669
C--> 13 <140> CURRENT APPLICATION NUMBER: US/10/069,772
C--> 15 <141> CURRENT FILING DATE: 2002-05-09
15 <150> PRIOR APPLICATION NUMBER: PCT/EP/00/08222
16 <151> PRIOR FILING DATE: 2000-08-23
18 <160> NUMBER OF SEQ ID NOS: 2
21 <170> SOFTWARE: WordPerfect version 6.1
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 1285
26 <212> TYPE: DNA
27 <213> ORGANISM: Calendula officinalis
29 <220> FEATURE:
30 <221> NAME/KEY: CDS
31 <222> LOCATION: (42)..(1175)
33 <400> SEQUENCE: 1
35 aaaagctcac ttctctgtga gggtaattat atatcaacaa c atg ggt gct ggt ggt 56
36                                     Met Gly Ala Gly Gly
37                                     1           5
39 cgg atg tcg gat cca tct gag gga aaa aac atc ctt gaa cgt gtg cca 104
40 Arg Met Ser Asp Pro Ser Glu Gly Lys Asn Ile Leu Glu Arg Val Pro
41          10          15          20
43 gtc gat cca ccg ttc acg tta agc gat ctg aag aaa gcg att cct acc 152
44 Val Asp Pro Pro Phe Thr Leu Ser Asp Leu Lys Lys Ala Ile Pro Thr
45          25          30          35
47 cat tgc ttt gag cga tct gtc atc cgg tca tca tac tat gtt gtt cat 200
48 His Cys Phe Glu Arg Ser Val Ile Arg Ser Ser Tyr Tyr Val Val His
49          40          45          50
51 gat ctc att gtt gcc tat gtc ttc tac tac ctt gca aac acg tat atc 248
52 Asp Leu Ile Val Ala Tyr Val Phe Tyr Tyr Leu Ala Asn Thr Tyr Ile
53          55          60          65
55 cct ctt att cct aca cct ctg gct tac cta gca tgg ccc gtt tac tgg 296
56 Pro Leu Ile Pro Thr Pro Leu Ala Tyr Leu Ala Trp Pro Val Tyr Trp
57 70          75          80          85
59 ttt tgt caa gct agc atc ctc acc ggc ctc tgg gtc atc ggt cac gaa 344
60 Phe Cys Gln Ala Ser Ile Leu Thr Gly Leu Trp Val Ile Gly His Glu
61          90          95          100
63 tgt ggt cac cat gca ttt agc gac tac cag ttg att gat gac att gtt 392
64 Cys Gly His His Ala Phe Ser Asp Tyr Gln Leu Ile Asp Asp Ile Val

```

RAW SEQUENCE LISTING

DATE: 09/09/2002

PATENT APPLICATION: US/10/069,772

TIME: 15:57:07

Input Set : A:\069772s1

Output Set: N:\CRF3\09092002\J069772.raw

65		105		110		115		
67	gga ttc gtg ctc cat tcg gct ctc acc ccg tat ttc tct tgg aaa	440						
68	Gly Phe Val Leu His Ser Ala Leu Leu Thr Pro Tyr Phe Ser Trp Lys							
69		120		125		130		
71	tat agc cac agg aat cac cac gcc aac aca aat tca ctc gat aac gat	488						
72	Tyr Ser His Arg Asn His His Ala Asn Thr Asn Ser Leu Asp Asn Asp							
73		135		140		145		
75	gaa gtt tac att cct aaa cgt aag tcg aag gtc aag att tat tcc aaa	536						
76	Glu Val Tyr Ile Pro Lys Arg Lys Ser Lys Val Lys Ile Tyr Ser Lys							
77	150		155		160		165	
79	ctt ctt aac aat cca ccc ggg cga gtg ttc act ttg gtg ttt cgg ttg	584						
80	Leu Leu Asn Asn Pro Pro Gly Arg Val Phe Thr Leu Val Phe Arg Leu							
81		170		175		180		
83	act tta gga ttt ccg tta tac ctc tta act aat atc tcg ggc aag aaa	632						
84	Thr Leu Gly Phe Pro Leu Tyr Leu Leu Thr Asn Ile Ser Gly Lys Lys							
85		185		190		195		
87	tac ggg agg ttt gcc aac cac ttt gat ccc atg agt cca att ttc aac	680						
88	Tyr Gly Arg Phe Ala Asn His Phe Asp Pro Met Ser Pro Ile Phe Asn							
89		200		205		210		
91	gat cgt gaa cgc gtt caa gtt ttg cta tcc gat ttc ggt ctt ctc gct	728						
92	Asp Arg Glu Arg Val Gln Val Leu Leu Ser Asp Phe Gly Leu Leu Ala							
93		215		220		225		
95	gta ttt tat gca atc aag ctt ctt gta gca gca aaa ggg gca gct tgg	776						
96	Val Phe Tyr Ala Ile Lys Leu Leu Val Ala Ala Lys Gly Ala Ala Trp							
97	230		235		240		245	
99	gta atc aac atg tac gca att cca gta cta ggt gta agc gtg ttc ttc	824						
100	Val Ile Asn Met Tyr Ala Ile Pro Val Leu Gly Val Ser Val Phe Phe							
101		250		255		260		
103	gtt ttg atc aca tat ttg cac cac acc cat ctc tca ctc cct cat tat	872						
104	Val Leu Ile Thr Tyr Leu His His Thr His Leu Ser Leu Pro His Tyr							
105		265		270		275		
107	gat tca acc gaa tgg aac tgg atc aaa ggc gcc tta tca aca atc gat	920						
108	Asp Ser Thr Glu Trp Asn Trp Ile Lys Gly Ala Leu Ser Thr Ile Asp							
109		280		285		290		
111	agg gat ttc ggg ttc ctg aat cgg gtt ttc cac gac gtt aca cac act	968						
112	Arg Asp Phe Gly Phe Leu Asn Arg Val Phe His Asp Val Thr His Thr							
113		295		300		305		
115	cac gtc ttg cat cat ttg atc tca tac att cca cat tat cat gca aag	1016						
116	His Val Leu His His Leu Ile Ser Tyr Ile Pro His Tyr His Ala Lys							
117	310		315		320		325	
119	gaa gca agg gat gca atc aag cca gtg ttg ggc gag tac tat aaa atc	1064						
120	Glu Ala Arg Asp Ala Ile Lys Pro Val Leu Gly Glu Tyr Tyr Lys Ile							
121		330		335		340		
123	gac agg act cca att ttc aaa gca atg tat aga gag gct aag gaa tgc	1112						
124	Asp Arg Thr Pro Ile Phe Lys Ala Met Tyr Arg Glu Ala Lys Glu Cys							
125		345		350		355		
127	atc tac atc gag ccc gat gag gat agc gag cac aaa ggt gtg ttc tgg	1160						
128	Ile Tyr Ile Glu Pro Asp Glu Asp Ser Glu His Lys Gly Val Phe Trp							
129		360		365		370		

RAW SEQUENCE LISTING

DATE: 09/09/2002

PATENT APPLICATION: US/10/069,772

TIME: 15:57:07

Input Set : A:\069772s1

Output Set: N:\CRF3\09092002\J069772.raw

```

131 tac cac aag atg taa tcaaaaaggt gtatgtcaat gcaattgtat gcttaattaa 1215
132 Tyr His Lys Met
133 375
135 gttgttaaac ttctattcc gtgtaataaa ttatcattaa gagaaaaaaa aaaaaaaaaa 1275
137 aaaaaaaaaa 1285
140 <210> SEQ ID NO: 2
141 <211> LENGTH: 377
142 <212> TYPE: PRT
143 <213> ORGANISM: Calendula officinalis
146 <400> SEQUENCE: 2
148 Met Gly Ala Gly Gly Arg Met Ser Asp Pro Ser Glu Gly Lys Asn Ile
149 1 5 10 15
151 Leu Glu Arg Val Pro Val Asp Pro Pro Phe Thr Leu Ser Asp Leu Lys
152 20 25 30
154 Lys Ala Ile Pro Thr His Cys Phe Glu Arg Ser Val Ile Arg Ser Ser
155 35 40 45
157 Tyr Tyr Val Val His Asp Leu Ile Val Ala Tyr Val Phe Tyr Tyr Leu
158 50 55 60
160 Ala Asn Thr Tyr Ile Pro Leu Ile Pro Thr Pro Leu Ala Tyr Leu Ala
161 65 70 75 80
163 Trp Pro Val Tyr Trp Phe Cys Gln Ala Ser Ile Leu Thr Gly Leu Trp
164 85 90 95
166 Val Ile Gly His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Leu
167 100 105 110
169 Ile Asp Asp Ile Val Gly Phe Val Leu His Ser Ala Leu Leu Thr Pro
170 115 120 125
172 Tyr Phe Ser Trp Lys Tyr Ser His Arg Asn His His Ala Asn Thr Asn
173 130 135 140
175 Ser Leu Asp Asn Asp Glu Val Tyr Ile Pro Lys Arg Lys Ser Lys Val
176 145 150 155 160
178 Lys Ile Tyr Ser Lys Leu Leu Asn Asn Pro Pro Gly Arg Val Phe Thr
179 165 170 175
181 Leu Val Phe Arg Leu Thr Leu Gly Phe Pro Leu Tyr Leu Leu Thr Asn
182 180 185 190
184 Ile Ser Gly Lys Lys Tyr Gly Arg Phe Ala Asn His Phe Asp Pro Met
185 195 200 205
187 Ser Pro Ile Phe Asn Asp Arg Glu Arg Val Gln Val Leu Leu Ser Asp
188 210 215 220
190 Phe Gly Leu Leu Ala Val Phe Tyr Ala Ile Lys Leu Leu Val Ala Ala
191 225 230 235 240
193 Lys Gly Ala Ala Trp Val Ile Asn Met Tyr Ala Ile Pro Val Leu Gly
194 245 250 255
196 Val Ser Val Phe Phe Val Leu Ile Thr Tyr Leu His His Thr His Leu
197 260 265 270
199 Ser Leu Pro His Tyr Asp Ser Thr Glu Trp Asn Trp Ile Lys Gly Ala
200 275 280 285
202 Leu Ser Thr Ile Asp Arg Asp Phe Gly Phe Leu Asn Arg Val Phe His
203 290 295 300
205 Asp Val Thr His Thr His Val Leu His His Leu Ile Ser Tyr Ile Pro

```

RAW SEQUENCE LISTING

DATE: 09/09/2002

PATENT APPLICATION: US/10/069,772

TIME: 15:57:07

Input Set : A:\069772s1

Output Set: N:\CRF3\09092002\J069772.raw

206	305				310				315				320			
208	His	Tyr	His	Ala	Lys	Glu	Ala	Arg	Asp	Ala	Ile	Lys	Pro	Val	Leu	Gly
209					325					330					335	
211	Glu	Tyr	Tyr	Lys	Ile	Asp	Arg	Thr	Pro	Ile	Phe	Lys	Ala	Met	Tyr	Arg
212				340					345					350		
214	Glu	Ala	Lys	Glu	Cys	Ile	Tyr	Ile	Glu	Pro	Asp	Glu	Asp	Ser	Glu	His
215			355					360					365			
217	Lys	Gly	Val	Phe	Trp	Tyr	His	Lys	Met							
218		370					375									

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/069,772

DATE: 09/09/2002

TIME: 15:57:08

Input Set : A:\069772s1

Output Set: N:\CRF3\09092002\J069772.raw

L:13 M:270 C: Current Application Number differs, Replaced Current Application Number
L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date